

September 14, 2004

Alan F. Taubert, Jr., P.E. , Project Manager
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Dear Alan:

Subsequent to your receipt of the Magnetic Field Evaluation for MECo's Salem Harbor Cap Bank Project and Transient Switching Study Report earlier this month, you forwarded us some follow up questions relative to the two documents. Following you will find responses to these inquiries which were provided by the appropriate engineering representatives at National Grid.

The following is a response to your 9/1/04 email to Sean Driscoll.

Yes, based on your September 1, 2004 email to Sean Driscoll, the Salem Harbor 115kV Capacitor Bank Switching Study dated August 2004 was primarily done to determine if switching the proposed 115kV, 63MVar capacitor banks on and off would affect the power supply to various locations *including* SESD. And yes, under any condition tested, the report indicates that SESD (three SESD power supplies and associated 13.8kV buss system) would not be negatively impacted by transient over voltages due to capacitor bank switching at Salem Harbor.

Yes, the Salem Harbor Substation Magnetic Field Simulation Report dated June 21, 2004 was done to determine if the EMF levels of the proposed 115kV, 63 MVar capacitor banks would affect the EMF levels at the SESD facilities, and if so, the operation of their electronics, instrumentation, controls, SCADA, and related equipment. Yes, based on the distances and EMF levels noted in the report, the SESD facility would not be negatively impacted by the EMF of these capacitor banks and neither will the above mentioned equipment.

It is National Grid's practice to calculate EMF levels based on maximum expected steady state currents. The currents generated during switching are of high frequency and short duration. National Grid does not analyze this type of situation for EMF. That being said, we can certainly inform you when we'll be testing the cap banks for the first time in order for you to observe if there is any effect on your equipment.

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In response to your original Question #3 - Will the district's reliability criteria be reduced in anyway with this project and the elimination of the Salem Harbor Station, we provide the following information.

The Massachusetts Electric Company issued a report on August 19, 1996 describing how SESD's service would remain in compliance with EPA and DEP reliability requirements in the case of unavailability of the Salem Harbor generators. The conclusion of this report stated that the supply system to SESD, as currently configured and operated, is designed to be highly reliable and its reliability is not substantially changed in the case of unavailability of the Salem Harbor generation. The addition of the capacitors at Salem Harbor will have no impact on these conclusions.

The following is in response to your 9/2/04 email to Robert Fougere in regard to Question #2.

The installation of the proposed Salem Harbor capacitor banks will only require planned outages on parts of the 115kV yard and not on the 23 kV yard that supplies power to SESD. No protection/relay changes are required on your site in relationship to the capacitor bank project.

The switchyard automation project which is currently in progress at Salem Harbor, but independent of the cap bank project, will require some planned outages in the 23kV yard at different times. The automation project is designed to upgrade all the protection and control systems and wiring throughout the Salem Harbor Switchyard. This is meant to have a positive effect on the reliability of the systems used to protect all the customers being supplied with power from this facility. We anticipate having to perform some switching in the 23kV yard to install and functionally test the associated equipment. This switching will be performed in a planned way in order to maintain continuous power to all customers supplied from the switchyard. At those times when the SESD feeder protection systems need to be upgraded, your facility will be made aware. We anticipate only having to have one power supply to your facility out at a time and hopefully only one day at a time. The existing MECO/SESD pilot wire protection system is planned to be upgraded as part of the automation project.

The capacitor bank 115 kV cable and duct system between the switchyard and the new capacitors will cross the SESD 23kV power supply cables. Your cables appear to be in a manhole and duct system approximately thirty inches below grade. At the cross over point we anticipate crossing underneath your ducts in a perpendicular direction. Crossing in this fashion will mitigate any electrical and mechanical effects to your supply. A perpendicular crossing should eliminate any inductive effect as well.

The general cable installation procedure is to mark out the other utilities prior to any excavation. Work would then proceed from the switchyard to the capacitor banks. As we get toward the vicinity of other utilities (in this case the SESD 23 kV lines) they will be exposed by hand digging to obtain their exact location and depth. The 115kV conduits will need to be installed beneath the 23 kV lines due to the size and configuration of the conduits. Since the existing 23 kV cables are concrete encased, they will be supported by the trench shoring beneath the concrete

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encasement. Once the 23kV duct bank is exposed and supported, the remaining soil will be removed using a vacuum truck rather than an excavator and the 115kV conduits are installed under the conduit.

The entire conduit run between the switchyard and the capacitor banks should be completed in about a week. The short section of conduit under the 23 kV lines to SESD should be excavated and backfilled in one day.

Finally, as stated in Conclusion item 2 (page 22) of the Switching Study, the synchronous close circuit breakers we plan to install with the 115kV capacitor banks at Salem Harbor should avoid any potential voltage impacts on your equipment (VFD's, solid state electronics, computers/SCADA system, etc.).

On behalf of all the National Grid personnel who had input to these answers and information, we hope we have provided all the answers to your follow up questions. In the event you have any further questions or concerns regarding the reports or these responses, please feel free to contact us. I expect that Kevin Kelly will touch base with you next week after he has returned to the office from his off-site work meetings.

Regards,

Sean R. Driscoll
Account Manager